Lesson Aim:

To understand the Law of Diminishing Marginal Returns

Success Criteria:

To define the Law of Diminishing Marginal Returns

To understand how you create a Marginal Cost Curve and hence derive supply

Initial Discussion:

Explain to the students that today we are starting the topic of supply. Explain to them that we will be conducting a classroom experiment for the first half of the lesson and that we will then go to the classroom to write up the results. The results of this experiment will provide us with the theoretical basis to understand the creation of a Supply Curve.

Outside Experiment (or inside if need be – simply reduce the distances:

Place two empty boxes 10m away from each other (i.e. at either end of the marquee). Pour a number of lego pieces into one of the boxes (or anything else that you have large numbers of – John Sloman, whose game this really is, uses cheap plant pots). Explain to the students that we are simulating a firm within the transport industry (limousine service, shipping business etc ...). The service that this firm provides is to get the lego pieces (plant pots etc.) from one box to the other.

The only resource available to the firm is labour – YOU! The labour picks up the lego from one box, runs over to the box and deposits it there. We will run the experiment through at least 6 phases. At every phase, we will increase the labour by one. We will then record what the impact has been on production at the end of every phase.

Choose a time-keeper. Choose a counter. Choose a scribe.

With more students you can have two teams competing simultaneously to shift the most pieces. The phases will last for a total of 30 secs (no more). At the end of every phase, the time-keeper will shout ‘STOP’ and the counter will count how many lego pieces made it across. He/she will return those lego pieces to the starting box – thereby resetting the original conditions. The scribe will note down the results. The teacher will select the next individual to perform the task and start the next phase.

At the end of 6 phases (possibly 7 or 8 depending on time available), the class will go back to the classroom to record the results.

Classroom Activity:

On the main whiteboard, write down the columns Units of Labour, Total Product, Marginal Product, Marginal Cost (see sheet at bottom). Enter the results for the first two. Ask the students what they think Marginal Product means. Ask them then to populate the Marginal Product column. Ask them to plot Total Product and Marginal Product. Go through the relationship of TP and MP with them. MP increases, then decreases, then becomes negative. This is the Law of Diminishing Marginal Returns. TP increases increasingly, then increases decreasingly and then decreases as a result.

Tell them that each worker costs £10 for 30 seconds (high quality staff!). Then ask what Marginal Cost is (the cost of producing one extra unit).

Ask them to plot this data on a mini whiteboard of some sort. Production/Quantity on the horizontal axis and Marginal Cost on the vertical.

Then pick a price (one somewhere between the highest and lowest Marginal Cost) and see if (probably in pairs) they can work out how many units a firm would want to produce – marking it on their whiteboard. Hopefully they will realise that the right output is the one where all units have MC below price.

You can then pick another higher price and show that the firm will now be able and willing to sell more. A good question at this point is to ask why the firm wouldn't produce any more output when the price was lower – if students can be brought to the understanding that supply will not increase even if demand is high because of the fact that a loss would be made, then a major source of misunderstanding will have been eradicated.

Cost of each worker = £10			
Labour Input	Total Product	Marginal Product	Marginal Cost
0	0	0	0
1			
2			
3			
4			
5			
6			